REMARKS

In the Office Action of October 3, 2007, the Examiner objected to the drawings for not being legible.

Submitted herewith are replacement Figures 2 and 3.

The Examiner objected that the specification contains sequences that are not identified by SEQ ID No.'s.

Submitted herewith is a replacement sequence listing that includes SEQ ID No.'s for the sequences indicated by the Examiner on page 19, lines 14 and 16, as well as in Figure 1.

This specification has been objected to for use of trademarks without being capitalized, without the trademark indication and without a generic description. The specification has also been objected to for containing embedded hyperlinks.

With the present amendments the trademarks have been capitalized, indicted as being trademarks, and a generic description included in the text. In addition, the references to hyperlinks have been deleted.

Claim 10 has been objected to for being of improper form because it is said to have been a multiply dependent claim, depending on claims 7-9.

Applicants respectfully wish to point out that in the preliminary amendment "claims 7-9" was amended to be "claim 7" by the mechanism of drawing a line through "s" and "-9." Accordingly, the claim, although further amended, is written as previously being dependent on claim 7.

Claims 7-9 stand rejected under 35 U.S.C. § 101 for being directed to non-statutory subject matter. The Examiner concluded that the claims are directed to products of nature.

With the present amendments the claims are directed to isolated proteins so that they could not encompass products of nature, the "hand of man" is necessary to obtain the claimed isolated proteins.

Claims 7-9 stand rejected under 35 U.S.C. § 112, first paragraph, for containing subject matter not described in the specification. The Examiner particularly objected to the use of

percent homologies, and objected that the claims do not indicate what distinguishing attributes or characteristics are shared by the members of the genus.

Claim 7 is now amended to add that the claimed protein is immunoreactive with antisera from *Streptococcus uberis* infected cows in addition to having the required sequence homology. This characteristic is illustrated in Example 2, beginning on page 21, and in the immunoblot gels illustrated in Figure 2. Following the procedures of Example 2, the ordinary skilled practitioner can without undue experimentation determine whether or not a particular protein of at least 93% (claim 7) or at least 96% (claim 8) homology meets the functional requirement set forth in the claims.

Claims 7-9 stand rejected under 35 U.S.C. § 102(b) for being anticipated by Leigh *et al.* The Examiner has relied on Leigh *et al.* for teaching *Streptococcus uberis* immunogenic proteins as vaccine antigens ranging from 20 kD to 66 kD.

The rejection over Leigh *et al.* is respectfully traversed. This reference teaches the preparation of antigen by incubating *Streptococcus uberis* in BHI BROTH and removing bacteria by centrifugation. The supernatant from centrifugation is clarified by filtration, from which proteins are precipitated. There proteins from the original supernatant are purified and used to make a vaccine. (See page 852, column 2, sections 2.2, 2.3 and 2.4). A gel of antigen proteins is presented in Figure 1 on page 854.

In the present application the claimed protein is a 22.5 kD cell wall associated protein that would not be found in the supernatant from which Leigh *et al.* purified their antigen. On page 21, Example 2, beginning line 15, it is stated that "S. uberis was grown under standard conditions and then treated with mutanolysin, an enzyme that degrades the cell wall of Streptococcal species. In this way, cell wall associated proteins will be released. After centrifugation these released proteins will be present in the supernatant. Both, supernatant and cell pellet were run on the protein gel."

Beginning line 25, it is stated "[i]n the lane comprising the purified 22.5 kDa expression product a clear band of approximately 23 kDa was visible. In Western immunoblotting this band reacted positive (sic) with antibodies from *S.uberis* infected cows (see Fig. 2 lane 6). In addition

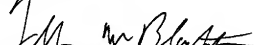
a band with a similar molecular weight was observed in lanes 3 and 5 which contained supernatant of mutanolysin treated S. uberis cells. Slight differences in molecular weight are caused by the extra HIS residues of the E. coli expression product. This indicates that the 22.5 kDa protein is located in the cell wall or on the surface of S.uberis cells."

In the absence of an enzyme that degrades a cell wall, which is not reportedly used by Leigh *et al.*, the antigens in the supernatant purified by Leigh *et al.* could not be cell wall associated proteins as in the present invention.

In view of the above it is believed that the claims as presently amended are in condition for allowance. Should it be believed that a conference would be helpful in advancing the prosecuting of this application, the Examiner is invited to telephone Applicants' attorney at the number below.

Applicants do not believe that any other fee is due in connection with this filing. If, however, Applicants do owe any such fee(s), the Commissioner is hereby authorized to charge the fee(s) to Deposit Account No. **02-2334**. In addition, if there is ever any other fee deficiency or overpayment under 37 C.F.R. §1.16 or 1.17 in connection with this patent application, the Commissioner is hereby authorized to charge such deficiency or overpayment to Deposit Account No. **02-2334**.

Respectfully submitted,



William M. Blackstone, PTO Reg. No. 29772
Chief Patent Counsel
Intellectual Property Department
Intervet Inc., a part of Schering-Plough
P.O. Box 318
29160 Intervet Lane
Millsboro, DE 19966
(302) 934-4317 (tel)
(302) 934-4305 (fax)

WMB:dap